CLAIMS

SUBSD

11. System for producing a stereoscopic image of an object, and displaying the stereoscopic image, the system comprising:

a capsule; and

a control unit;

said capsule comprising:

a sensor assembly;

a processor connected to said sensor assembly;

a capsule transceiver connected to said processor;

a light source; and

a power supply for supplying electrical power to said capsule transceiver, said processor, said light source and to said sensor assembly,

said control unit comprising:

a control unit transceiver; and

an image processing system connected to said control unit transceiver,

wherein, said sensor assembly detects said stereoscopic image, said processor captures said stereoscopic image, said capsule transceiver transmits said stereoscopic image to said control unit transceiver and said image processing system processes said stereoscopic image.

2. The system according to claim 1, wherein said capsule further comprises a memory unit connected to said processor and to said capsule transceiver, said power supply supplying electrical power to said memory unit.

3. The system according to claim 1, wherein said control unit further comprises a memory unit connected to said control unit transceiver and to said image processing system .

4. The system according to claim 1, wherein said capsule further comprises an optical assembly for focusing an image of said object on said sensor assembly.

5. The system according to claim 2, wherein said capsule further comprises an optical assembly for focusing an image of said object on said sensor assembly.

6. The system according to claim 3, wherein said capsule further comprises an optical assembly for focusing an image of said object on said sensor assembly.

7. The system according to claim 1, wherein said capsule further comprises a light dispersing unit which surrounds said sensor assembly completely.

8. The system according to claim 1, wherein said capsule further comprises a light dispersing unit which surrounds said sensor assembly partially.

9. The system according to claim 2, wherein said capsule further comprises a light dispersing unit which surrounds said sensor assembly completely.

10. The system according to claim 2, wherein said capsule further comprises a light dispersing unit which surrounds said sensor assembly partially.

11. The system according to claim 3, wherein said capsule further comprises a light dispersing unit which surrounds said sensor assembly completely.

12. The system according to claim 3, wherein said capsule further comprises a light dispersing unit which surrounds said sensor assembly partially.

13. The system according to claim 1, wherein said capsule further comprises at least one dispensing compartment.

14. The system according to claim 1, wherein said capsule further comprises at least one collecting compartment.

15. The system according to claim 13, wherein each of said at least one dispensing compartments comprises a door mechanism, and each of said door mechanisms is connected to said processor.

16. The system according to claim 14, wherein each of said at least one collecting compartments comprises a door mechanism, and each of said door mechanisms is connected to said processor.

17. The system according to claim 1, wherein said control unit furthermore comprises a user interface connected to said control unit transceiver and to said image processing system.

18. The system according to claim 15, wherein each of said at least one dispensing compartments further contains a medical substance.

19. The system according to claim 16, wherein each of said at least one collecting compartments collects a bodily substance.

20. The system according to claim 18, wherein each of said at least one dispensing compartments releases a selected amount of said medical substance according to a command provided by said processor to said door mechanism .

21. The system according to claim 19, wherein each of said at least one collecting compartments collects a selected amount of said bodily substance according to a command which said processor provides said door mechanism.

22. The system according to claim 15, wherein each of said door mechanisms comprises a moving element for opening and closing each of said door mechanisms.

23. The system according to claim 16, wherein each of said door mechanisms comprises a moving element for opening and closing each of said door mechanisms.

24. The system according to claim 22, wherein the type of said moving element is selected from the list consisting of:

shape memory element;
bi-metallic element; and
micro-electromechanical system.

25. The system according to claim 23, wherein the type of said moving element is selected from the list consisting of:

shape memory element;
bi-metallic element; and
micro-electromechanical system.

26. The system according to claim 1, wherein said sensor assembly comprises:

lenticular lens layer, including a plurality of lenticular elements; and

light sensor array,

wherein each said lenticular elements is located in front of a selected group of said light sensors, thereby directing light from different directions to different light sensors within said selected group of said light sensors.

Sub B3 27. The system according to claim 26, wherein said light source produces at least two alternating beams of light, each said at least two alternating beams of light, each said alternating beams of light characterized as being in a different range of wavelengths.

28. The system according to claim 26, wherein said light source produces light in a predetermined range of wavelengths.

29. The system according to claim 26, wherein said light sensor array includes at least two groups of sensors, the sensors of each said group detect light in a different range of wavelengths.

30. The system according to claim 26, wherein said light sensor array includes a plurality of sensors, each said sensors detects light in a predetermined range of wavelengths.

31. The system according to claim 27, wherein each said different ranges of wavelengths associated with said light source, is selected from the list consisting of:

substantially visible red color light;

substantially visible green color light;

substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

32. The system according to claim 29, wherein each said different ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

33. The system according to claim 30, wherein each said predetermined ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;

substantially ultra-violet light; and

visible light.

34. The system according to claim 26, wherein said light sensor array is a color red-green-blue (RGB) sensor array.

35. The system according to claim 26, wherein said light sensor array is a color cyan-yellow-magenta-green (CYMG) sensor array.

36. The system according to claim 26, wherein each said lenticular elements includes light directing means which distinguish between at least two directions of light.

37. The system according to claim 26, wherein each said lenticular elements includes light directing means, which distinguish between four directions of light.

38. The system according to claim 26, wherein each said lenticular elements is shaped in a general semi-cylindrical shape.

39. The system according to claim 26, wherein each said selected group of said light sensors includes an even number of light sensors.

40. The system according to claim 1, wherein said sensor assembly comprises:

at least two apertures, each said at least two apertures includes a light valve, each said light valves being operative to open at a different predetermined timing; and

a light sensor array,

wherein said light sensor array detects a plurality of images, each said images corresponds to an open state of a selected one of said light valves.

41. The system according to claim 40, wherein said light source produces at least two alternating beams of light, each alternating beams of light characterized as being in a different range of wavelengths.

42. The system according to claim 40, wherein said light source produces light in a predetermined range of wavelengths.

43. The system according to claim 40, wherein said light sensor array includes at least two groups of sensors, the sensors of each said group detect light in a different range of wavelengths.

44. The system according to claim 40, wherein said light sensor array includes a plurality of sensors, each said sensors detects light in a predetermined range of wavelengths.

45. The system according to claim 41, wherein each said different ranges of wavelengths associated with said light source, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

46. The system according to claim 43, wherein each said different ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

47. The system according to claim 44, wherein each said predetermined ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

48. The system according to claim 40, wherein said light sensor array is a color red-green-blue (RGB) sensor array.

49. The system according to claim 40, wherein said light sensor array is a color cyan-yellow-magenta-green (CYMG) sensor array.

50. The system according to claim 41, wherein each said images corresponds to a predetermined combination of an open state of a selected one of said light valves and a selected one of said at least two alternating beams of light.

51. The system according to claim 40, wherein said light source surrounds said at least two apertures.

52. The system according to claim 40, wherein said light source directs light aside from said at least two apertures.

53. The system according to claim 1, wherein said sensor assembly comprises:

a lower light sensor array connected to said processor;

an upper light sensor array connected to said processor, an upper light sensor array detecting surface faces a direction opposite to the direction of a lower light sensor array detecting surface;

a lower mirror facing said lower light sensor array detecting surface;

an upper mirror facing said upper light sensor array detecting surface; and

an optical assembly located between said lower mirror, said upper mirror and said object for directing light beams from said object to said lower mirror and to said upper mirror, and

wherein each of said lower light sensor array and said upper light sensor array includes a plurality of light sensors, and

wherein said optical assembly directs at least one light beam from a first portion of said object to said lower mirror, and said optical assembly directs at least one light beam from a second portion of said object to said upper mirror, and

wherein said lower mirror reflects said at least one light beam from said first portion to said lower light sensor array detecting surface, said upper mirror reflects said at least one light beam from said second portion to said upper light sensor array detecting surface, and

wherein said lower light sensor array detects an image of said first portion and said upper light sensor array detects an image of said second portion.

54. The system according to claim 53, wherein said light source produces at least two alternating beams of light, each said alternating beams of light characterized as being in a different range of wavelengths.

55. The system according to claim 53, wherein said light source produces light in a predetermined range of wavelengths.

56. The system according to claim 53, wherein said lower light sensor array includes at least two groups of sensors, the sensors of each said group detect light in a different range of wavelengths.

57. The system according to claim 53, wherein said upper light sensor array includes at least two groups of sensors, the sensors of each said group detect light in a different range of wavelengths.

58. The system according to claim 53, wherein said lower light sensor array includes a plurality of sensors, each said sensors detects light in a predetermined range of wavelengths.

59. The system according to claim 53, wherein said upper light sensor array includes a plurality of sensors, each said sensors detects light in a predetermined range of wavelengths.

60. The system according to claim 54, wherein each said different ranges of wavelengths associated with said light source, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

61. The system according to claim 56, wherein each said different ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

62. The system according to claim 57, wherein each said different ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

63. The system according to claim 58, wherein each said predetermined ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

64. The system according to claim 59, wherein each said predetermined ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;

substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

65. The system according to claim 53, wherein said lower light sensor array is a color red-green-blue (RGB) sensor array.

66. The system according to claim 53, wherein said upper light sensor array is a color red-green-blue (RGB) sensor array.

67. The system according to claim 53, wherein said lower light sensor array is a color cyan-yellow-magenta-green (CYMG) sensor array.

68. The system according to claim 53, wherein said upper light sensor array is a color cyan-yellow-magenta-green (CYMG) sensor array.

69. The system according to claim 53, wherein said lower mirror is convex.

70. The system according to claim 53, wherein said upper mirror is convex.

71. The system according to claim 1, further comprising a stereoscopic display, connected to said image processing system, for visually presenting said stereoscopic image.

72. The system according to claim 71, wherein said stereoscopic display is selected from the list consisting of:

stereoscopic goggles;

stereoscopic display unit; and

volumetric three-dimensional display.